CHEMISTRY (BS)

Related Programs

Major

- Secondary Education (BSEd) (https://catalog.luc.edu/undergraduate/education/secondary-education-bsed/)

Curriculum

Requirements include the Loyola Core Curriculum including the writing-intensive and language requirement, fifteen chemistry courses totaling 45 credit hours, four physics courses totaling 8 credit hours, three mathematics courses totaling 11 hours. CHEM 300 Undergraduate Research is strongly recommended. Credit hours earned in CHEM 300 Undergraduate Research or CHEM 380 Chemistry Seminar do not count as elective hours satisfying the BS degree requirement. Both CHEM 300 Undergraduate Research and CHEM 380 Chemistry Seminar are required for Departmental honors. The CHEM-BS degree is accredited by the American Chemical Society.

### Code | Title | Hours
--- | --- | ---
CHEM 160 | Chemical Structure and Properties | 3
CHEM 161 | Chemical Structure and Properties Laboratory | 1
CHEM 180 | Chemical Reactivity I | 3
CHEM 181 | Chemical Reactivity I Lab | 1
CHEM 240 | Chemical Reactivity II | 3
CHEM 242 | Chemical Synthesis Laboratory | 2
CHEM 260 | Quantitative Methods in Chemistry | 3
CHEM 272 | Analytical Chemistry Laboratory | 2
CHEM 280 | Environmental & Chemical Analysis | 3
CHEM 301 | Physical Chemistry I | 3
CHEM 302 | Physical Chemistry II | 3
CHEM 303 | Physical Chemistry Lab I | 2
CHEM 370 | Biochemistry I | 3
CHEM 314 | Instrumental Analysis | 4
CHEM 340 | Advanced Inorganic Chemistry | 3
CHEM 341 | Advanced Inorganic Laboratory | 1

Chemistry Elective | 3
Chemistry Elective | 3

### Code | Title | Hours
--- | --- | ---
PHYS 111L | College Physics Laboratory I | 1
PHYS 112L | College Physics Lab II | 1
MATH 117 | Precalculus I | 3
MATH 118 | Precalculus II | 3

CAS requirements.

### Course | Title | Hours
--- | --- | ---
Freshman | | 
Fall | CHEM 160 | Chemical Structure and Properties | 3
Fall | CHEM 161 | Chemical Structure and Properties Laboratory | 1
Fall | MATH 161 | Calculus I | 4

Spring | | 
Spring | CHEM 180 | Chemical Reactivity I | 3
Spring | CHEM 181 | Chemical Reactivity I Lab | 1
Spring | MATH 162 | Calculus II | 4

Sophomore | | 
Fall | CHEM 240 | Chemical Reactivity II | 3
Fall | PHYS 121 | College Physics I Lec/Dis | 3
Fall | PHYS 111L | College Physics Laboratory I | 1

Math Courses Required

March | MATH 161 | Calculus I | 4
Fall | MATH 162 | Calculus II | 4
Fall | STAT 203 | Introduction to Probability & Statistics | 3

Total Hours | 65

- Core requirements (https://catalog.luc.edu/undergraduate/university-requirements/university-core/)
- Please visit http://www.luc.edu/cas/academics_degrequirerequirements.shtml/#college to view other CAS requirements.
- For chemistry course descriptions, pre and co-requisite information, and math requirement information please visit http://www.luc.edu/chemistry/courses_undergrad.shtml (https://www.luc.edu/chemistry/courses_undergrad.shtml/).

All chemistry majors are assigned a chemistry faculty advisor. Please meet with your advisor on a regular basis, at least twice a year, for assistance with your chemistry schedule, research possibilities, graduate school information and more. If you do not know who your advisor is please call the chemistry department at 773/508-3100 or come to the department office located in Flanner Hall room 125.

### Suggested Sequence of Chemistry, Math, and Physics Courses

Students not placing in MATH 118 Precalculus II or higher cannot start the Chemistry sequence until MATH 117 Precalculus I is completed with a grade of C- or better. Such students are advised to enroll in first-year Chemistry courses in the summer sessions (after meeting the math requirement) in order to complete the major in four years.

### Course | Title | Hours
--- | --- | ---
Fall | CHEM 240 | Chemical Reactivity II | 3
Fall | PHYS 121 | College Physics I Lec/Dis | 3
Fall | PHYS 112L | College Physics Lab II | 1

Spring | STAT 203 | Introduction to Probability & Statistics | 3

Junior | | 
Fall | CHEM 260 | Environmental & Chemical Analysis | 3
Fall | CHEM 301 | Physical Chemistry I | 3

Spring | CHEM 302 | Physical Chemistry II | 3
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CHEM 303</td>
<td>Physical Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Instrumental Analysis 1</td>
<td>4</td>
</tr>
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<td></td>
<td><strong>Hours</strong></td>
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**Senior Fall**

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<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CHEM 340</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Hours</strong></td>
<td><strong>3</strong></td>
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<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td><strong>55</strong></td>
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1 Capstone Course: CHEM 314 Instrumental Analysis for Junior or Senior year

CHEM 300 Undergraduate Research and CHEM 380 Chemistry Seminar are strongly recommended and required to receive Departmental Honors with graduation. Credit hours earned in CHEM 300 Undergraduate Research and/or CHEM 380 Chemistry Seminar do not count as elective hours satisfying the CHEM-BS degree requirement. CHEM 361 Principles of Biochemistry does not count towards the CHEM-BS degree.

**College of Arts and Sciences Graduation Requirements**

All Undergraduate students in the College of Arts and Sciences are required to take two Writing Intensive courses (6 credit hours) as well as complete a foreign language requirement at 102-level or higher (3 credit hours) or a language competency test. More information can be found here (https://www.luc.edu/cas/college-requirements/).

**Additional Undergraduate Graduation Requirements**

All Undergraduate students are required to complete the University Core, at least one Engaged Learning course, and UNIV 101. SCPS students are not required to take UNIV 101. You can find more information in the University Requirements (https://catalog.luc.edu/undergraduate/university-requirements/) area.

**Learning Outcomes**

At the completion of the Undergraduate Major in Chemistry or Biochemistry, students will be able to:

1. answer knowledge and comprehension type questions related to fundamental chemical concepts and demonstrate fluency with basic facts, terminology, and principles in the various subfields of chemistry.
2. understand and describe the chemical basis of life, our natural resources and environments, and the universe.
3. retrieve, research, synthesize, and critically evaluate scientific literature.
4. design and implement experiments that test predictive hypotheses, gather relevant data, analyze results, and interpret the significance of these results.
5. operate state of the art equipment used by chemists and biochemists.
6. engage in scientific reasoning with claims based on supported evidence and communicate effectively results and interpretations of scientific research.